

Remarks/Arguments

Reconsideration of this application is requested.

Claim Status

Claims 1-20 are pending. Since no claims are added, canceled or amended, no listing of claims is required under 37 CFR 1.121.

Claim Rejections – 35 USC 103

Claims 1, 2, 5-8, 11, 12, 15-18 and 19 are rejected under 35 USC 103(a) as obvious over Kato (US 5,39,347). Claims 3, 4, 9, 10, 13, 14, 17 and 20 are rejected as obvious over Kato in view of Maruo (US 6,163,619). Claims 5 and 6 are rejected as obvious over Kato in view of Namizuka (US 6,934,057). In response, applicant traverses the rejections and submits that the claims as filed distinguish over all references of record.

The present invention is directed to an image processing device which appropriately and automatically determines whether or not to eliminate isolated points for image data to be processed. As disclosed in the flowchart of FIG. 5, after receiving image data in step S200, a plurality of isolated points are detected for each page of image data (step S201 and S202). For each page of data, if the number of isolated points are at or below a threshold value, the isolated points are eliminated by the image processing circuit 16 and the page is printed out. However, if the number of isolated points are above the threshold value, the page is printed out with the isolated points (paragraphs 0025-0027). Thus, the isolated points on a page of image data are first detected and then counted before being compared to a threshold value to determine whether or not to eliminate the isolated points.

Importantly, the isolated points are counted and compared to a threshold value before the isolated points are eliminated. As shown in FIG. 5, isolated points are first detected at step S201, counted and compared to a threshold value at step S204, and then eliminated at step S205 when the number of isolated points is at or below a threshold value. This is a critical feature that is recited in each of independent claims 1, 5, 7, 11 and 13.

Kato clearly does not operate in this manner. Kato is directed to a method of inspecting a workpiece surface for dust or flaws such as on an automobile assembly line. As shown in FIG. 11 and described in column 9, lines 7-44, an image is first digitized and then undergoes noise elimination by an electrical process if a noise level is less than or equal to a given level. After the noise elimination step in FIG. 11, isolated points are detected, counted, measured, and then outputted to a TV monitor 50. Since noise is eliminated before the isolated points are detected, the noise and isolated points are not the same such that there is no correspondence between them. Instead, the isolated points of Kato are defined as small black spots that appear on bright areas 12 due to dust on a coating of a workpiece surface 6 (col. 1, lines 38-41 and col. 9, lines 33-34). The process of detecting isolated points after eliminating noise is provided for both planar and non-planar workpiece surfaces 35. In sum, Kato eliminates noise based on a given value and then detects isolated points for display on a monitor 50 (col. 9, lines 23-35). Thus, there is no disclosure or suggestion that the isolated points are eliminated according to a threshold value of counted isolated points.

Moreover, with respect to dependent claims 2, 6, 8, 12 and 18, those claims require the threshold value to be set at different values according to an image resolution. Kato, by contrast, merely discloses a threshold value $\alpha = L_{\text{MIN}} + (L_{\text{MAX}} - L_{\text{MIN}}) \cdot A$, where L_{MAX} is a maximum luminance, L_{MIN} is a minimum luminance and A is a coefficient value (col. 8, lines 34-45). Kato's threshold value is based solely on luminance and not on image resolution.

The ancillary references do not remedy the deficiencies of Kato. Maruo teaches wavelet transformation of an image. Namizuka discloses a variable threshold stored in RAM.

Since Kato, Maruo and Namizuka do not disclose each and every element of independent claims 1, 5, 7, 11 and 13, Kato, Maruo and Namizuka cannot render obvious those claims or claims 2-4, 12, 14, 16 and 18-20 dependent thereon. The rejections under 35 USC 103 should be withdrawn.

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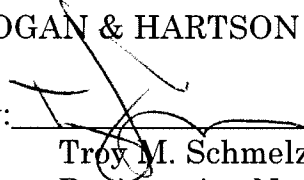
Atty. Ref. 81710.0254
Customer No. 26021

Conclusion

This application is now believed to be in condition for allowance. The Examiner is invited to telephone the undersigned to resolve any issues that remain after entry of this amendment. Any fees due with this response may be charged to our Deposit Account No. 50-1314.

Respectfully submitted,
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